

# NGDA Dataset Report

**Official NGDA Title:** Inland Electronic Navigational Charts (IENC)

**Metadata Record Title:** Inland Electronic Navigational Charts (IENC)

**A-16 NGDA Theme:** Transportation

## Executive NGDA Theme Champion(s):

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## Dataset Manager(s):

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## Metadata:

**Registration Status:** Complete

**Registered on** 1/28/2015

**GeoPlatform Link\*:** <https://www.geoplatform.gov/node/243/41afbf06-d270-410b-9b0d-f002c57c2a81>

**Data.gov Metadata Link\*:** <http://catalog.data.gov/harvest/object/9cbc29d9-f25c-4e36-9eac-657c258dbbef/html>

\*If the metadata has been updated and reharvested after publication of this report, the link may no longer be valid. The dataset may be searched for manually in Data.gov or GeoPlatform.gov.

# NGDA Lifecycle Maturity Assessment (LMA) Report

## Time Frame:

Baseline assessment responses based on start time of 2001 when the IENC Program started up to the present 2015.

## LMA Submission:

**Status:** Complete

**Date:** 9/22/2015

**Extension Requested:** No

## LMA Reviewer(s):

**Supervisor:** Did not review

**Theme Lead:** Raquel Hunt

**Executive Champion:** Richard McKinney

**SAOGI\*:** Richard McKinney

**Other:** Steve Lewis (GIO)

## LMA Verifier:

**Name:** Raquel Hunt

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## Attachments:

To get access to any attachments referenced in the report, email the LMA Help Desk at NGDA\_LMA\_help@fgdc.gov. Please use the subject "Dataset Report Attachment(s)" and indicate the associated official NGDA title.

\*Senior Agency Official for Geospatial Information (SAOGI)

## Lifecycle Maturity Assessment (LMA) Summary

### Overall Maturity:

**Optimized; Established**

General Questions: 100%

**Optimized; Established**

Stage 1 - Define/Plan: 100%

**Optimized; Established**

Stage 2 - Inventory/Evaluate: 100%

**Optimized; Established**

Stage 3 - Obtain: 100%

**Optimized; Established**

Stage 4 - Access: 100%

**Optimized; Established**

Stage 5 - Maintain: 100%

**Optimized; Established**

Stage 6 - Use/Evaluate: 88%

**Mature; Consistent**

Stage 7 - Archive: 100%

**Optimized; Established**

### NGDA Dataset Maturity Definitions:

**How To Calculate Maturity:** [https://www.geoplatform.gov/sites/default/files/How\\_to\\_Calculate\\_Maturity.pdf](https://www.geoplatform.gov/sites/default/files/How_to_Calculate_Maturity.pdf)

Maturity	Maturity Characteristics for All Lifecycle Stages
Optimized; Established Rank = 5	Dataset meets virtually all business needs of all users. The dataset is considered authoritative by owners and secondary users. It is curated across all stages of the approved lifecycle. Future needs are defined on a regular basis and resources for addressing both current and future business requirements are available.
Mature; Consistent Rank = 4	Dataset meets all the business needs of the primary owner and most of the secondary users. The dataset is curated and used as authoritative by the primary owner. Dataset is used widely by secondary users actively engaged in sustaining the dataset. Future needs are identified and steps are planned to address these. All stages are supported and reviewed on a recurring basis. The dataset is well managed in relation to the approved lifecycle.
Managed; Predictable Rank = 3	Dataset meets a significant number of the business needs of the primary owner and is widely used as an authoritative resource by secondary users. Benchmark activities are occurring in at least four of the approved lifecycle stages. Management practices in relation to the approved lifecycle is moderate but consistent. Dataset is integrating changing business requirements in lifecycle stages impacting overall maturity.
Transition; Transformation Rank = 2	Dataset meets business needs of the primary owner and has moderate use by secondary users. Benchmark activities are occurring in at least three stages. Efforts to integrate funding, include partners, and obtain data are not supported in a sustained manner. Management practices in relation to the stages of the approved lifecycle is limited.
Planned; Initial Development Rank = 1	Dataset limited in meeting business needs of the primary owner. Benchmark activities in the approved lifecycle are just starting to consider secondary uses, partnerships are forming to support additional dataset uses. Dataset development is in a very early stage. Minimal or limited management against the benchmarks in the approved lifecycle.
No Activity Rank = no activity	Dataset meets project or local business needs of the primary owner, secondary or additional uses or users were not considered, not recognized as an authoritative data or is part of a similar dataset. Not managed to any of the benchmarks in the approved lifecycle.

## General Questions for All Stages

1) Is there a recurring process to obtain funding for all lifecycle stages of this dataset?

**Answer:** Funding support is part of agency budget on a recurring basis, funding is consistent and tied to business processes, and supports all lifecycle stages.

**Justification Comment:**

**Attachment(s):** 1

Funding comes through the Navigation Business Line at Headquarters of USACE.

The program has a line item in the USACE budget.

Supplemental funding usually occurs in Feb each year.

FY16 funding for this has increased by 50% to \$4.5M. See attached J-Sheet for FY17.

2) Is there a process in place to ensure that open government and transparency guidelines are followed in all lifecycle stages for this dataset?

**Answer:** Process is published as appropriate with respect to sensitivity requirements, process is transparent, published appropriately.

**Justification Comment:**

**Attachment(s):** 0

Data availability:

All chart data is unclassified and available to the public

-Public cloud [www.ienccloud.us](http://www.ienccloud.us)

-Metadata at [data.gov](http://data.gov)

-<http://www.agc.army.mil/Missions/Echarts.aspx>

3) Are there processes and tools in place so that staff are sufficiently knowledgeable to ensure a continuity of the dataset for all stages of the lifecycle, especially during staffing transitions?

**Answer:** Processes and tools to ensure dataset continuity are in place and implemented for all lifecycle stages.

**Justification Comment:**

**Attachment(s):** 1

Data collection, processing, distribution and archiving are documented in the IENC Engineering Manual available at

<http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM%201110-2-6055.pdf>

QA/QC processes and SOP are also documented there. see attached slide on the QA process. Continuous learning, conferences and annual internal program reviews occur.

Staff transition processes in place.

## STAGE 1 - Define/Plan

4) Are user and business requirements defined and formalized?

**Answer:** A recurring process is in place, including defining new partner and stakeholder business needs as they arise, and is fully implemented.

**Justification Comment:**

**Attachment(s):** 0

The International Hydrographic Organization( [www.iho.int](http://www.iho.int) ) provides scale and resolution standards for all international electronic charting. The IENC program adheres to these standards by using the S-57 data exchange format and the S-100 product specification. The data conforms to metadata standards.

[https://www.iho.int/iho\\_pubs/standard/S-100/S-100\\_Ed\\_2/S\\_100\\_V2.0.0\\_June-2015.pdf](https://www.iho.int/iho_pubs/standard/S-100/S-100_Ed_2/S_100_V2.0.0_June-2015.pdf)

User requirements come from the commercial towing industry, recreational users, and other government agencies including NOAA and US Coast Guard.

Continuous feedback from industry and government agencies occurs at national conferences and through district meetings.

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**5)** How are partners/stakeholders involved in the requirements collection process?

**Answer:** A recurring process is in place, including defining new partner and stakeholder business needs as they arise, and is fully implemented.

**Justification Comment:**

**Attachment(s):** 0

Stakeholders are identified at national, regional and local levels. This includes commercial towing industry, recreational users, and other government agencies including NOAA and US Coast Guard.

Users and stakeholders support the dataset by contributing data quality control and verifying features are correct on the charts as related to the river environment. Website tool sends error report to the relevant USACE districts for verification and correction.

Stakeholders include the towing industry, recreational users, government agencies and academia.

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**6)** Is there a quality assurance process for the dataset?

**Answer:** Quality assurance published as appropriate with respect sensitivity requirements.

**Justification Comment:**

**Attachment(s):** 1

There is a quality control manager for all electronic charts in USACE. All charts submitted by USACE districts are verified before publication on the web. See attached slide on QA process. Any errors found are corrected before publication.

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**7)** Is there a process to evaluate the sensitivity, privacy, and confidentiality of this dataset?

**Answer:** Sensitivity, privacy, and confidentiality evaluations fully implemented, reviewed and updated on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

All chart data is public and contains no sensitive data, personally identifiable information, or any type of classified data. There is no classified information on any chart.

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**8)** Are defined data standards used in collecting, processing, and/or rendering the data?

**Answer:** Standards fully implemented documented and published as appropriate.

**Justification Comment:**

**Attachment(s):** 0

The International Hydrographic Organization( [www.iho.int](http://www.iho.int) ) provides scale and resolution standards for all international electronic charting. The IENC program adheres to these standards by using the S-57 data exchange format and the S-100 product specification. The data conforms to metadata standards.

[https://www.iho.int/iho\\_pubs/standard/S-100/S-100\\_Ed\\_2/S\\_100\\_V2.0.0\\_June-2015.pdf](https://www.iho.int/iho_pubs/standard/S-100/S-100_Ed_2/S_100_V2.0.0_June-2015.pdf)

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## STAGE 2 - Inventory/Evaluate

**9)** Is there a process for determining if data necessary to meet requirements already exist from other sources (either within or outside the agency) before collecting or acquiring new data?

**Answer:** Process for determining appropriate data is being reused fully implemented, reviewed, and updated on a regular basis.

**Justification Comment:**

**Attachment(s):** 0

The USACE is responsible for all inland federal navigable waterways. This includes maintaining a minimum depth in all federal channels. Data from the channels is obtained from USACE districts and/or their contractors. No data is included on USACE charts that is not collected and verified by USACE. No other agency collects data that is used on USACE charts. We supply our data to NOAA and US Coast Guard for their use.

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## STAGE 3 - Obtain

**10)** Is there a process for obtaining data in relation to this dataset?

**Answer:** Process is fully implemented, reviewed and updated on a regular basis.

**Justification Comment:**

**Attachment(s):** 0

New data is collected as needed to update charts. Charts with new data are uploaded to the web every 2 weeks. Data is collected by the districts which have responsibility for the charts in their district boundaries. The actual hydrographic and feature data collection process is determined by the districts. The processes have been in place for over 10 years.

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**11)** Is the metadata in a FGDC endorsed geospatial metadata standard?

**Answer:** Metadata is available in a format endorsed by the FGDC, it fully describes the dataset and provides all the information required to make the dataset discoverable, accessible, and usable.

**Justification Comment:**

**Attachment(s):** 0

Yes, our metadata is in an FGDC endorsed standard (ESRI's versioning), and the standard we are moving toward is also endorsed by FGDC (SDSFIE-M). This is taken from the SDSFIE page, "The DISDI Group recently adopted a new metadata standard for use in the I&E community called SDSFIE-M. The standard, like ISO 19115 and the National System for Geospatial-Intelligence (NSG) Metadata Foundation (NMF) from which it is derived, consists of a conceptual schema and an implementation specification. These documents are being submitted to the Geospatial Intelligence Standards Working Group (GWG) for consideration for inclusion into the DoD IT Standards Registry (DISR)". We are moving to extend that standard so that it then 'matches/fits' the new Data.Gov look and feel, which is not only happy with FGDC, but also with the new requirements outlined in the link to Memo 13-13. <ftp://ftp.usace.army.mil/usace/agc/>

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**12)** How complete is the geographic coverage as defined in the requirements for the dataset?

**Part 1 Answer:** Business requirements for cyclic updates identified and a process is in place.

**Part 2 Answer:** Dataset has presently attained the greatest geographic coverage as defined by the current requirements or roughly 100%.

**Justification Comment:**

**Attachment(s):** 0

Complete coverage of all inland navigable federal rivers is available via web page download. Data set consists of 107 charts comprising over 7500 miles of rivers. Data included in the charts consists of depth data, shoreline, land structure, bridges, roads, underwater cables and pipelines and depth contours. Resolution is at 1:5000 scale. Features in the data set are defined by the Inland Feature Standard 2.3.

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## STAGE 4 - Access

**13)** Do you have a process for providing users access to the data in an open digital machine readable format?

**Answer:** User access process is fully implemented, data is available, process is reviewed and updated on a recurring basis.

**Justification Comment:**

**Attachment(s):** 1

Data are available in three formats: S-57, Shapefiles, and KML. The S-57 format is an international marine data exchange format that is used by ECDIS and ECS for electronic charts display. Shapefiles are used by GIS community for basic map analysis. KML files are used by the general public along with Google Earth to display geographic data on commonly used earth maps. All data is available for free on Amazon Web Services at [www.ienccloud.us](http://www.ienccloud.us).

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## STAGE 5 - Maintain

**14)** Is there a maintenance process for updating and storing the dataset?

**Answer:** Dataset maintenance process is fully implemented and processes are reviewed and periodically updated.

**Justification Comment:**

**Attachment(s):** 0

ER 1110-2-1150 (Engineering and Design for Civil Works Projects) prescribes that mandatory requirements be identified in engineer manuals. Mandatory requirements in this manual are summarized at the end of each chapter. The mandatory criteria contained in this manual are based on the following considerations: (1) assurance that IENCs contain accurate depictions of real-world and cartographic features, (2) consistency and uniformity of IENC products and product availability, (3) consistency with national and international electronic chart standards, (4) unambiguous representation of waterway conditions to navigation users and vendors of electronic chart systems, and (5) HQUSACE commitments to navigation users of the inland waterways.

a. Mandatory requirements in this manual reflect the USACE policy on performance-based specifications; emphasis is on accuracy, content, and consistency of the final product. Specific software or processing systems generally are not mandated, recognizing that various GIS and other geospatial processing software exist and new capabilities are evolving rapidly. However, users must carefully and methodically evaluate software or procedures not recognized for IENC development activities.

b. IENCs are intended to derive data from other Corps water resource functions; namely, hydrographic surveys for channel condition assessment, dredge payment, and structural inspection. Other functions include channel design, regulatory permits, and environmental monitoring. Some standards and procedures for IENCs may come from EMs for these other functions, and are referenced in this manual.

c. Any Corps personnel who perceive conflicts between guidance in this manual and standards or procedures for other functions, or have suggestions for more effective criteria and guidance for IENCs, are strongly encouraged to recommend modifications -- see Proponency and Waivers section at the end of this chapter.

See <http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM%201110-2-6055.pdf>

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**15)** Is there an error correction process as part of dataset maintenance?

**Answer:** Error correction process includes user notification, process reviewed on a recurring basis.

**Justification Comment:**

**Attachment(s):** 1



IENC has a quality control manager who inspects each chart for errors after they are submitted by the districts. This is performed at each monthly cycle of data submittals. See attached slide. In addition there is an error reporting site on our web page that can be used by the public to identify any errors on the charts. The report is sent to the QC manager and to the appropriate district for their use and to correct any erroneous data. see link below

<https://ienc-report.usace.army.mil/Default.aspx>

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## STAGE 6 - Use/Evaluate

**16)** Is there a process to determine if the dataset meets user needs?

**Answer:** Process is fully implemented and repeated on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

As stated previously a review of standards and requirements occurs on a regular basis. Input from the community comes from meetings and conferences held on annually. Public input occurs via web site comments, email and other public forums. Additional requirements from industry or other agencies are addressed at our annual program review meeting. New technology is regularly being assessed to ascertain if it is applicable to our data and the dissemination.

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**17)** Is there a process to provide users information on how to access and properly use the dataset?

**Answer:** Process is fully implemented supporting access and proper use, process is reviewed on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

All data is available via [www.ienccloud.us](http://www.ienccloud.us). Our website, [agc.army.mil](http://agc.army.mil) has a link and description of our data and instructions on how to access it. Viewing the chart data can be accomplished by downloading a free chart viewer, also available on our website. Our data is presented at public conferences and symposiums and at Data.gov.

In addition we have an XML catalog and RSS feeds to supply the latest updates to be automatically downloaded to users if desired.

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**18)** Are the business processes and management practices assessed to meet changing technology?

**Answer:** Assessment process implementation started for taking advantage of changing technology.

**Justification Comment:**

**Attachment(s):** 0

At present we provide the data in shapefiles, KML and S-57 format. The international standard for marine data exchange is S-57 and is used by all of industry on their ECDIS. New technology such as mobile apps and cloud based servers are reviewed on a regular basis at conferences, program reviews and public forums. New hydrographic data collection technology such as multibeam sonar and mobile scanning lidar are implemented as needed to increase accuracy and availability for the public.

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## STAGE 7 - Archive

**19)** Is there an archiving process for the dataset?

**Answer:** Archival and disposition processes are fully implemented.

**Justification Comment:**

**Attachment(s):** 0

All IENC data is archived each month and backed up on a weekly basis. The archives are located in two locations. One is on the local server at the agency and the other is on Amazon Web Services (AWS) or cloud server. All IENC data is served via AWS to the public and the archives are there also.



The data is archived to allow for retrieval in the event of a controversy over navigation issues.